

REMARKS

A substitute specification is being submitted herewith together with a copy of the original marked-up specification showing the editorial changes made thereto. No new matter has been added.

It is noted, with appreciation, that the Examiner has indicated that claims 7-19 have been allowed.

Claims 1, 2, and 4-6 have been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Fenton et al., U.S. Patent 5,093,162 in view of Japanese Document 2001-286585 and Kobayashi, U.S. Patent 5,429,357. Also, claim 3 has been rejected by the Examiner under 35 USC 103(a) as being unpatentable over Fenton in view of the Japanese document and Kobayashi and further in view of Oonuki et al., U.S. Patent 5,348,777. These rejections are respectfully traversed.

The present invention is directed to a golf club having a specific relationship between the gravity point of its relatively large-sized club head and the torsional rigidity of the club shaft which rebounds fully at impact. The problems solved by the present invention can best be seen by referring to Figs. 7(a) and 7(b) which show the rotational angle of the club head around the club shaft central line. If the torque T of the shaft is more than a specific amount, it becomes difficult for a golfer to square the clubface at the time of impact. On the other hand, if the torque

is less than a specific amount, it is difficult to effectively increase the head speed of the golf club. According to the present invention, the Applicant has identified a relationship between the torque (T) of the golf club shaft in a gravity point distance (L) which is effective in squaring the golf club head at impact utilizing golf clubs having a golf club head with a volume of not less than 250 cc. The Applicant has determined that the torque of the golf club shaft can be adjusted by changing a number of parameters, for example, the number of PREPEG pieces P, the shape and/or size of each PREPEG piece P, the orientation angle δ of the reinforced fibers therein and the like. The gravity point distance L, which advantageously falls within the range of 34-41 mm, can be controlled by changing the weight distribution of the club head; using a metal material having a large specific gravity; using a metal material having a small specific gravity; changing the shape of the club head; and the like. Thus, the Applicant has not only established a necessary relationship between the torque and the gravity point of the club head for achieving the ability to square the club head at impact, but also has determined what parameters can be utilized in the golf club to change the torque (T) in the gravity point distance (L) of the golf ball.

The second reference does not recognize the Applicant's problem inasmuch as the reference patent is concerned with a golf club shaft which is constructed in such a way as to make a golf

club more easily hittable at all levels of play. The reference patent is not even remotely concerned with the relationship between the torque (T) of a golf shaft in the gravity point distance (L) between the gravity point of the golf club head and the central line of the club shaft as defined by the present invention. The Japanese reference also clearly does not recognize the relationship between the torque of the club head and the gravity point distance (L) but rather is more concerned with other parameters such as the height of the face of the golf club (H), the width of the face of the golf club (L), and the like. Although reference is made therein to the distance of the center of gravity from the shaft axis, the fact that this distance is 45 mm, that is, outside of the range of 34-41 mm, clearly indicates that the reference is not concerned with the Applicant's problem or the Applicant's solution to said problem. Also, there is no identification in the reference of what parameters can be used to vary the values of torque (T) and gravity point distance (L) for establishing the relationship between torque and gravity point as defined by the claims of the present application.

The Kobayashi reference is concerned with providing a club head with a wide sweep area by combining a plurality of shell members, each having a thickness which is easy to adjust so that the hollow portion of the club head may be enlarged and the center of gravity may be transferred toward the back of the golf club head

body. Here again, the patentee does not recognize the Applicant's problem and thus does not even remotely suggest a torqued-center of gravity relationship which is effective in squaring the face of the golf club at impact.

The Oonuki patent is relied upon by the Examiner to show a gravity point distance (L) being in the range of from 20-50 mm (see Col. 2, lines 22-35). Although, arguably, the gravity point distance point (L) falls within the range of 20-50 mm as recited in Col. 2 of the reference patent, it is clear that the Oonuki et al. patent does not recognize the importance of maintaining the gravity point distance within a specific, relatively narrow, range. Thus, as noted on page 6 of the present application it is stated that if the gravity point distance (L) is too long, it becomes difficult for the club head to rebound completely. On the other hand, if the gravity point distance (L) is too short, the club head rebounds too far. Therefore, the gravity point distance L is preferably set within the range of from 33-41 mm, more preferably 34-44 mm. In any event, there is no recognition in the reference of what parameters can be used to vary the parameters of torque and the gravity point distance (L) for establishing the relationship between the torque and gravity point as defined by the claims of the present application.

In view of the deficiencies in all of the references discussed hereinabove, it is necessary for the Examiner to dissect bits and

pieces from each of the references in an attempt to suggest the present invention. Thus the Examiner is clearly reconstructing the teachings of the references in view of the Applicant's own disclosure. Accordingly, reconsideration of the rejections and allowance of all of the claims of the present application are respectfully requested.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mr. Joseph A. Kolasch (Reg. No. 22,463) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant respectfully petitions for a one-month extension of time for filing a reply in connection with the present application, and the required fee of \$110 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment(s): Abstract of the Disclosure